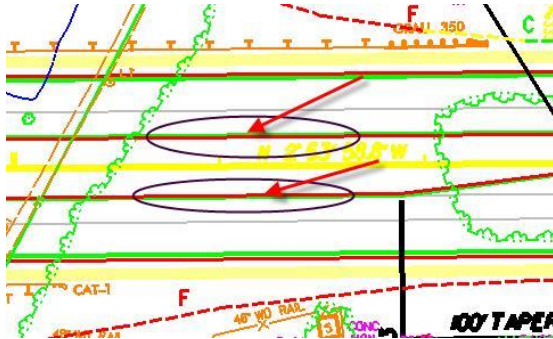


17_05 Effects of NCDOT Project Scale vs. Plot Scale

Question:

Iplot scale is 200:1. I tried using the 50,100, and 200 of the project scale in the psh and dsn files without success. The curve data and alignment information are too dark, but when I plot it using the same 200 scale in letter size, the texts ok. Why is that?

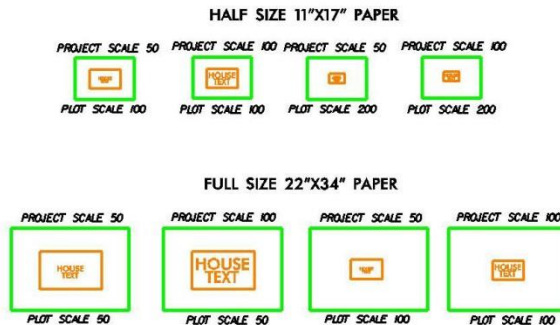


Answer:

The legibility of any plan sheet is heavily dependent on the two scale systems.

- 1) NCDOT Project Scale
- 2) Plot Scale

I suspect that the same area wasn't plotted using the same plot scale in this case. Meaning if the same area or sheet space is plotted for full size, then plotted out half size for the same area, the plot scale should have at least doubled. I think the comparison in this case is plotting a whole sheet with a 200 scale and then fitting a much smaller area using the same 200 plot scale to plot. Regardless, below is a sketch depicting the various ways Project Scale and plot scale can have an affect on a common set of elements (same).



The scale process is initiated when the requests for surveys are made.

Designers should be aware that the Project Scale/plot scale has no effect on 'real world' elements and dimensions. For example, both scales do not have any effect on the distance between existing EOP, nor the dimension of existing foundations and buildings. However, elements such as texts, labels (text nodes and leader lines), and some cells can vary according to Project Scale plotted using same plot scale. This is true for existing basemapping elements from Locations and Surveys and Photogrammetry as well as proposed elements in Roadway Design. Again, the main reason to apply Project Scale is to maintain some degree of legibility for text elements and other 'non-real world' CADD elements.

In this situation, the surveys were probably done on a plan sheet scale of 1"=100'.

For normal plan sheets in Roadway Design, this will translate to a desired Project Scale of 100, plan sheet cell scale of 100, plot scale of 100 full size on 22"x34" paper space, and a plot scale of 200 half size on 11"x17" paper space.

However, this sheet is an interchange sheet. Interchange sheets are commonly twice the size, in terms of scaling, compared to normal plan sheets. For interchange plan sheets in Roadway Design, this will translate to an desired Project Scale of 200, plan sheet cell scale of 200, plot scale of 200 full size on 22"x34" paper space, and a plot scale of 400 half size on 11"x17" paper space.

The reason why the texts look proportionally correct when printed on a letter size paper is because the same plot scale (200) is applied to a much smaller area. Therefore increasing the size of the text when plotted out. Below is a metaphor for comparison. Plot out a full sheet at 200 scale.



Compare it with a plot of half the sheet width and height using the same 200 plot scale scale (much smaller area).



This may answer your question about the text size being legible when applying the same plot scale to a much smaller area, but it will not completely help you with your plotting problem. Once you understand how plot scale comes into play, the other key criteria is the desired NCDOT Project Scale. It looks like the proposed alignment labels and curve data were laid out at a 50 scale because the text size is 7 units. The alignment labels and curve data should be laid out at 100 or 200 scale, thus increasing the text and label sizes to 14 and 21 respectively. It is recommended by CADD Support that for this TYP interchange sheet, if a plot scale is 200 full size, then the NCDOT Project Scale of 200 is also selected. Use the Hearing Map DDB for laying out horizontal alignments 200 scale or greater. For the actual alignments itself (lines, arcs, and curves), there is little one can do because these area 'real world' elements and dimensions.